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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,777	06/01/2001	Robert G. Hockaday	ENERGY RD	1298

7590

09/12/2003

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EXAMINER

WILLS, MONIQUE M

ART UNIT

PAPER NUMBER

1746

DATE MAILED: 09/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,777

Applicant(s)

HOCKADAY ET AL.

Examiner

Wills M Monique

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,7-13,15,16,21,22 and 26 is/are rejected.
- 7) ☒ Claim(s) 4-6,14,17-20,23,24,27 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

The information disclosure statement(s) filed June 1, 2001 has/have been received and complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 .

Claim Objections

Claims 2 & 3 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 2 necessitates the membrane passing hydrogen preferentially over other gases. However, this limitation is inherently implied by the "hydrogen gas selective permeable membrane" of claim 1. Claim 3 necessitates the membrane passing hydrogen preferentially over other gases including water, carbon dioxide and oxygen.

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However, this limitation is inherently implied by the hydrogen selective membrane above because said gases are the only possible bi-products of the electrochemical reaction that the membrane can have selection preference over.

Allowable Subject Matter

Claims 4-6,9,14,17-19, 20, 23-24 & 27-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4-6 would be allowable over the prior art of record, because the prior art is silent to a membrane battery vent comprising a hydrogen gas membrane adjacent a porous substrate and further comprising a catalytic surface layer.

Claim 9 would be allowable over the prior art of record, because the prior art is silent to a membrane battery vent comprising a hydrogen gas membrane adjacent a porous substrate and further comprising a substrate of etched nuclear particle track dielectric films.

Claim 14 would be allowable over the prior art of record, because the prior art is silent to a membrane battery vent comprising a hydrogen gas membrane adjacent a porous substrate and further comprising vacuum deposited selectively permeable materials of Pt, Pd and its alloys.

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Claims 17-18 would be allowable over the prior art of record, because the prior art is silent to a membrane battery vent comprising a hydrogen gas membrane adjacent a porous substrate and further comprising electrolytes in contact with the selective permeable film.

Claims 19 would be allowable over the prior art of record, because the prior art is silent to a membrane battery vent comprising a hydrogen gas membrane adjacent a porous substrate wherein said membrane is circumscribed by non-selective gas permeable coatings.

Claims 20 & 23-24 would be allowable over the prior art of record, because the prior art is silent to a membrane battery vent comprising a hydrogen gas membrane adjacent a porous substrate and further comprising diffusion gas mats placed on the membrane.

Claims 27-28 would be allowable over the prior art of record, because the prior art is silent to a battery vent comprising a gas selective e permeable catalytically active gas recombination membrane secured over the opening in a battery case.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

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granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 7,8,10,13,15 & 25-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al. U.S. Pub. No. 2003/0134182.

Jones teaches a battery pressure relief valve or passive ventilation device for releasing hydrogen from a battery enclosure (abstract). Referring to FIG. 1, enclosure 3 is preferably a conventional battery chamber configured to house batteries 9 that emit hydrogen when overcharged. Enclosure 3 includes an outer shell 11 and an insulating layer 13 disposed within outer shell 11. See column 3, lines 10-25.

As shown in FIG. 1, gas permeable panel 7 forms a portion of insulating layer 13. In a specific configuration, panel 7 is integrally attached to insulating layer 13 and disposed adjacent one of the sidewalls 21. Insulating layer 13 preferably contacts, or is at least adjacent to, substantially the entire inner surface of outer shell 11 (i.e., the top, bottom and three of the sidewalls 18-20). However, sidewall 21 of shell 11 is spaced away from gas permeable panel 7 to define a ventilation space 32 therebetween. See column 3, lines 30-40. Referring to FIG. 3, gas permeable panel 7 comprises a thermally insulating membrane 40 constructed of a material that will substantially insulate inner chamber 5 and will allow a low density, hazardous gas, such a hydrogen, to pass therethrough. Membrane 40 will have a hydrogen conductivity rate of greater than 25 ml, in/ft.² per min (at 1% concentration of H₂ within inner chamber 5) and preferably greater than 50 ml, in/ft.² per min (at 1% concentration of H₂). In a specific configuration, membrane 40 comprises a rigid fiberglass duct board

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having a thickness between 1 to 3 inches. See column 3, lines 60-68. Gas permeable panel 7 may further include an outer film 42 attached to an outer surface 44 of membrane 40. Outer film 42 serves to protect the fiberglass membrane from moisture and dirt that may enter with the ambient air through inlet opening 34. In a specific configuration, film is a layer of water-proof plastic, such as commercial plastics from DuPont Chemical, that will allow hydrogen to diffuse therethrough. Although the plastic layer will tend to lower the rate of hydrogen permeation through gas permeable panel 7, applicant has found that the combined hydrogen conductivity rate of the plastic and the fiberglass membrane is sufficient to ventilate inner chamber 5 (i.e., about half the rate of the fiberglass membrane alone). See column 4, lines 10-25.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 12, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. U.S. Patent 5,603,656 as applied to claim 1 above, in view of Levy U.S. Patent 4,191,806.

Baer teaches a membrane vent assembly for a battery as described hereinabove, including a plastic substrate adjacent to a hydrogen selective membrane.

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Baer does not expressly disclose that the substrate may be selected from materials including polyester, polyethylene, polypropylene, polyimide or polyethersulfone.

However, Levy teaches that it is conventional to employ harder plastics such as polypropylene and polyethylene in venting systems because the material is resealable, prevents leakage and capable under excess pressure to burst fully to provide a safe cell environment. See column 2, lines 10-30 and column 4, lines 5-20.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the polyolefin plastics of Levy as the plastic material of Baer because the material is resealable, prevents leakage and capable under excess pressure to burst fully to provide a safe cell environment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. U.S. Patent 5,603,656 as applied to claim 1 above, in view of Markin et al. U.S. Patent 4,476,200.

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Baer teaches a membrane vent assembly for a battery as described hereinabove, including a plastic substrate adjacent to a hydrogen selective membrane.

The reference is silent to a seal with a heat or pressure stamp.

However, Markin teaches that it is conventional to employ seals with a pressure stamp around battery vents in order to obviate electrolyte leakage. (col. 3, lines 20-35 and col. 4, lines 10-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a pressure stamp seal to obviate electrolyte leakage.

Conclusions

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

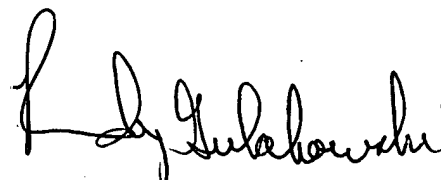
If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 703-308-4333.

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The unofficial fax number is (703) 305-3599. The Official fax number for non-final amendments is 703-872-9310. The Official fax number for after final amendments is 703-872-9311.

Mw

8/23/03

A handwritten signature in black ink, appearing to read "Randy Gulakowski". The signature is fluid and cursive, with the first name "Randy" and last name "Gulakowski" clearly distinguishable.

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700